

The opinion in support of the decision being entered
today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JEFFREY S. BARBER
AND JOSEPH K. VOSSEN

Appeal 2007-1536
Application 09/517,366¹
Technology Center 2100

Decided: October 10, 2007

Before HOWARD B. BLANKENSHIP, ALLEN R. MACDONALD,
and CAROLYN D. THOMAS, *Administrative Patent Judges*.

THOMAS, C., *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Application filed March 2, 2000. The real party in interest is Hewlett-Packard Company.

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from a Final Rejection of claims 21-30 and 38-40 entered November 1, 2005. We have jurisdiction under 35 U.S.C. § 6(b).

Appellants invented a system, method, and computer readable medium for establishing a secure execution environment for a software process. (Specification, Abstract).

The appeal contains claims 21-30 and 38-40. Claims 1-20 and 31-37 are allowed. Claim 21 is the only independent claim under appeal. As best representative of the disclosed and claimed invention, claim 21 is reproduced below:

21. A computer readable medium having instructions for causing a computer to execute a method; comprising;

operating a software process on a computer, said software process including a plurality of attributes;

executing an operating system kernel in communication with said software process, said operating system kernel in communication with an executable file to be accessed by said software process; and

modifying the plurality of attributes for the software process based on an executable environment attribute stored in association with the executable file, such that when said executable file is executed, a new software process attribute is set as a function of the executable environment attribute.

The Final Rejection includes the following rejection which is before us for review:

Claims 21-30 and 38-40 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Appellants appealed from the Final Rejection and filed an Appeal Brief (Br.) on February 6, 2006. The Examiner mailed an Examiner's Answer (Answer) on June 6, 2006. Appellants filed a Reply Brief (Reply Br.) on August 1, 2006.

We affirm.²

ISSUES

The issue is whether Appellants have shown that the Examiner erred in rejecting representative claim 21 as being directed to non-statutory subject matter.

FINDINGS OF FACT

The following findings of fact (FF) are supported by a preponderance of the evidence.

Appellants' Admissions

1. At page 5, lines 20-23, of the Specification, Appellants state that "a 'computer-readable medium'" can be any means that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device."
2. At page 5, line 23 to page 6, line 1, of the Specification Appellants further state that "[t]he computer readable medium can be, for example but

² Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Briefs have not been considered and are deemed to be waived. See 37 C.F.R. § 41.37(c)(1)(vii) (2004).

not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, device, or propagation medium.”

3. Appellants further note on page 6, lines 7-11, “that the computer-readable medium could even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via for instance optical scanning of the paper or other medium, then compiled, interpreted or otherwise processed in a suitable manner if necessary, and then stored in a computer memory.”

PRINCIPLES OF LAW

The scope of patentable subject matter under section 101 is broad, but not infinitely broad. “Congress included in patentable subject matter *only* those things that qualify as ‘any ... process, machine, manufacture, or composition of matter, or any ... improvement thereof....’” *In re Warmerdam*, 33 F.3d 1354, 1358, 31 USPQ2d 1754, 1757 (Fed. Cir. 1994) (quoting 35 U.S.C. § 101) (emphasis added). Thus, “[d]espite the oft-quoted statement in the legislative history of the 1952 Patent Act that Congress intended that statutory subject matter ‘include anything under the sun that is made by man,’ [citation omitted], Congress did not so mandate.” *Id.*

In the case where a claim is for a process, as opposed to a product, “[t]he line between a patentable ‘process’ and an unpatentable ‘principle’ is not always clear. Both are ‘conception[s] of the mind, seen only by [their] effects when being executed or performed.’” *Parker v. Flook*, 437 U.S. 584, 589, 198 USPQ 193, 197 (1978) (quoting *Tilghman v. Proctor*, 102 U.S.

707, 728 (1880)). “The holding that the discovery of [*Benson's*] method could not be patented as a ‘process’ forecloses a purely literal reading of § 101.” *Flook*, 437 U.S. at 589, 198 USPQ at 197. “[W]hen a claim containing [an abstract idea] implements or applies that [idea] in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (*e.g.*, transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.” *Diamond v. Diehr*, 450 U.S. 175, 192, 209 USPQ 1, 10 (1981); *see also Gottschalk v. Benson*, 409 U.S. 64, 70, 175 USPQ 673, 676 (1972) (“Transformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.”).³

The Supreme Court, however, presumably concerned about barring patents for future, unforeseeable technologies, declined to rule on whether its precedent foreclosed any other possible avenues for a method claim to qualify as a section 101 process: “It is argued that a process patent must either be tied to a particular machine or apparatus or must operate to change

³ The principal exception to this rule, as explained *infra*, is when the machine-implemented method merely manipulates abstractions. *See Benson*, 409 U.S. at 71-72, 175 USPQ at 676-77. In addition, merely attaching a machine to an otherwise ineligible method may not be sufficient and would depend on how the machine actually implemented the recited steps. For example, if a nonstatutory claim were amended so that a recited step of registering a customer was performed by entering data into a computer rather than using a sign-up sheet, it is hard to imagine how that alone would satisfy the requirements of § 101 and convert an otherwise ineligible claim into an eligible one.

articles or materials to a ‘different state or thing.’ We do not hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents.” *Benson*, 409 U.S. at 71, 175 USPQ at 676. Rather than rule on this question in *Benson* and *Flook*, the Supreme Court decided those cases based on the abstract idea exception to patentability. *Benson*, 409 U.S. at 71-72, 175 USPQ at 676-77; *Flook*, 437 U.S. at 594-95, 198 USPQ at 199-200.

Since *Diehr*, the Federal Circuit has reviewed several computer technology cases, and in acknowledgment of the innovations occurring in this technological field, identified a third category of method claims that qualify as a “process.” Extrapolating from the Supreme Court's “transformation and reduction of an article” test, the Federal Circuit has held that transformation of intangible subject matter (*i.e.*, data or signals) may also qualify as a § 101 process. *See, e.g., State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1601 (Fed. Cir. 1998). Responding to the argument that process claims must recite a “physical transformation,” the Federal Circuit in *AT&T* ruled that “physical transformation,” “is not an invariable requirement, but merely one example of how a mathematical algorithm may bring about a useful application.” *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999). Quoting the Supreme Court's language, “*e.g.*, transforming or reducing an article to a different state or thing” from *Diehr*, the *AT&T* court noted the usage of “*e.g.*” “denotes an example, not an exclusive requirement.” *Id.* at 1359, 50 USPQ2d at 1452. *AT&T* went on to cite the transformation of intangible

data signals in the method claim of *Arrhythmia Research Technology Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1059, 22 USPQ2d 1033, 1038 (Fed. Cir. 1992), as an example that qualifies as a § 101 “process” in addition to the Supreme Court's test. *See id.* at 1359, 50 USPQ2d at 1452.

Accordingly, the Federal Circuit has consistently used its own “data transformation” test in assessing the eligibility of various machine-implemented claims. In *Alappat*, the court held that “data, transformed by a machine” “to produce a smooth waveform display” “constituted a practical application of an abstract idea.” *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601. Specifically, the court in *Alappat* stated that the claimed invention as a whole was directed to a machine for “converting discrete waveform data samples into anti-aliased pixel illumination intensity data to be displayed on a display means.” 33 F.3d 1526, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994) (en banc). In *Arrhythmia*, the court held “the transformation of electrocardiograph signals” “by a machine” “constituted a practical application of an abstract idea.” *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601. Specifically, the court in *Arrhythmia* stated “the number obtained is not a mathematical abstraction; it is a measure in microvolts of a specified heart activity, an indicator of the risk of ventricular tachycardia.” 958 F.2d at 1062, 22 USPQ2d at 1039. Likewise, in *State Street*, the court held that “the transformation of data” “by a machine” “into a final share price, constitutes a practical application of a mathematical algorithm” because “a final share price [is] momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.” 149 F.3d at 1373, 47 USPQ2d at 1601. Thus, while *Diehr* involved the

transformation of a tangible object - curing synthetic rubber - Federal Circuit also regards the transformation of intangible subject matter to similarly be eligible, so long as data or signals represent some real world activity.

The Federal Circuit has never held or indicated that a process involving no transformation can qualify as a “process” under § 101. In fact, confronted with such claims, it has rejected them consistently. *See In re Schrader*, 22 F.3d 290, 294-295, 30 USPQ2d 1455, 1458 (Fed. Cir. 1994); *In re Grams*, 888 F.2d 835, 837, 12 USPQ2d 1824, 1826 (Fed. Cir. 1989) (rejecting claims to method of evaluating a system that incorporated a mathematical algorithm, where the only physical step was a data gathering step that was not tied to the algorithm); *In re Maucorps*, 609 F.2d 481, 484, 203 USPQ 812, 815 (CCPA 1979); *In re Meyer*, 688 F.2d 789, 796, 215 USPQ 193, 198 (CCPA 1982); *see also In re Alappat*, 33 F.3d at 1543, 31 USPQ2d at 1556 (“*Maucorps* dealt with a business methodology for deciding how salesmen should best handle respective customers and *Meyer* involved a ‘system’ for aiding a neurologist in diagnosing patients. Clearly, neither of the alleged ‘inventions’ in those cases falls within any § 101 category.”).⁴

In *Schrader*, the court affirmed the 101 rejection of a method of competitively bidding on a plurality of related items, relying in part on the

⁴ *But see State Street*, 149 F.3d at 1376 n.14, 47 USPQ2d at 1603 n.14 (observing that “[*Maucorp* and *Meyer*] were subject to the *Benson* era *Freeman-Walter-Abele* test - in other words, analysis as it existed before *Diehr* and *Alappat*,” without addressing the fact that it was the *Alappat* decision itself that made the observation that these inventions were “clearly” nonstatutory).

Freeman-Walter-Abele (“FWA”) test. However, consistent with *Arrhythmia*, *Alappat*, *State Street*, and *AT&T*, the court also inquired into whether Schrader's method claim performed any kind of transformation. *Schrader*, 22 F.3d at 294, 30 USPQ2d at 1458 (“we do not find in the claim any kind of data transformation.”). The court then distinguished Schrader's claim from the statutorily eligible claims in *Arrhythmia*, *In re Abele*, 684 F.2d 902, 214 USPQ 682 (CCPA 1982), and *In re Taner*, 681 F.2d 787, 214 USPQ 678 (CCPA 1982), pointing out that in these cases, “[t]hese claims all involved the transformation or conversion of subject matter representative of or constituting *physical activity or objects*. *Id.* (emphasis in original). *Schrader* expressly concludes that “a process claim [in] compliance with Section 101 requires some kind of transformation or reduction of subject matter.”⁵ *Id.* at 295, 30 USPQ2d at 1459. In sum, the Federal Circuit has

⁵ Although the FWA test is no longer considered particularly probative in the context of computer-implemented process inventions in view of *Diehr* (see, e.g., *State Street*, 149 F.3d at 1374, 47 USPQ2d at 1601), the erosion of FWA provides no support for the position that a non-machine implemented process, not involving any transformation, might be patentable. The answer to that question is still provided by *Schrader*, and that answer, so far, is negative. While *AT&T* indicated that *Schrader* is “unhelpful” because it did not reach the question whether a “useful, concrete, and tangible result” occurred, the reason that case did not need to reach that question was because it found that Schrader's method claims were unpatentable for lack of any transformation. In addition, Schrader's claims did not require machine-implementation, unlike *AT&T*'s claims. See *AT&T*, 172 F.3d at 1358, 50 USPQ2d at 1452 (“*AT&T*'s claimed process” uses “switching and recording mechanisms to create a signal useful for billing purposes.”). Moreover, it is axiomatic that dicta in one Federal Circuit panel decision cannot overrule the holding of an earlier panel decision. *George E. Warren Corp. v. United States*, 341 F.3d 1348, 1351 (Fed. Cir. 2003) (“We cannot simply overrule [a

never ruled that methods without any transformation are eligible, and appears in *Schrader* to have rejected that proposition.

ANALYSIS

In the Brief, Appellants argue claims 21-30 and 38-40 as a group. In other words, for claims 22-30 and 38-40, Appellants merely repeat the same argument made for claim 21. Thus, the Board selects representative claim 21 to decide the appeal. 37 C.F.R. § 41.37(c)(1)(vii)(2006). Accordingly, the remaining claims stand or fall with claim 21. *See* 37 C.F.R. § 41.37(c)(1)(vii). *See also In re Young*, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991).

Claims 21-30 and 38-40 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Claim 21, reproduced *supra*, is representative.

Specifically, claim 21 is directed to “[a] computer readable medium” and Appellants explicitly states “that the computer-readable medium could even be paper or another suitable medium upon which the program is printed”. (FF 3). Appellants further state that the “‘computer-readable medium’ can be any means that can... propagate, or transport the program.” (FF 1-2).

Therefore, we conclude that the medium of claim 21 includes both a requirement that information be printed on paper and/or a requirement that

prior panel] decision, even if we were persuaded ... that it is appropriate; to overrule a precedent, the court must rule en banc” (citing *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 765, 9 USPQ2d 1417, 1423 (Fed.Cir.1988)).

there by a propagation or transmission media. As such, we have before us both the classic “printed matter” situation and a “transmission type” situation.

Printed Matter Situation

We conclude that claim 21 requires, *inter alia*, a “paper” with (1) printed textual instructions for operating a software process on a computer..., (2) printed textual instructions for executing an operating system kernel..., and (3) printed textual instructions for modifying the plurality of attributes for the software process... such that a new software process attribute is set as a function of the executable environment attribute.

In essence, Appellants’ “medium” includes paper, and a paper with printed textual instructions in the form of computer instructions is still a paper printed with nonfunctional descriptive material. Appellants’ Specification on page 6 supports this because at least three separate steps (scanning, compiling, and interpreting) are required before the descriptive material can be employed as a computer component in the computer memory thus becoming functional descriptive material (Specification 6:7-11).

Appellants’ argue that “the Federal Circuit decision in *In [r]e Lowry* explicitly rejected the notion that printed matter rejections apply to computer readable media”. (Br. 5). The Examiner responds that “Appellant’s [sic] argument that the examiner’s rejection based on the claims covering a form of printed matter conflicts with current case law is believed to be flawed...”. (Answer 8). We agree.

The “medium” before us now differs from the “memory” comprising a “data structure” found in *Lowry*. *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994). In *Lowry*, the court stated, “More than mere abstraction, the data structures are specific electrical or magnetic structural elements in a memory.” The court concluded, “Lowry's data structures are physical entities that provide increased efficiency in computer operation” and “[t]hey are not analogous to printed matter.” *Id.* “In sum, the [data structures in memory] perform a function.” *Id.*

Despite Appellant's explanation that the printed matter will eventually be converted (by scanning, compiling, and interpreting) into a functional computer component (FF 3), the claim before us does not contain that component, nor are these three steps functions performed by the claimed “medium.” Instead, the invention covers a piece of paper with instructions printed thereon, not a process of executing the instructions with a machine. Thus, we merely find printed matter.

Appellants’ further argue that “*In re Beauregard* expressly stated that the printed matter doctrine does not apply to computer program product claims.” (Br. 5). The Examiner responds that “Appellant’s [sic] argument that *Beauregard* somehow establishes that a piece of paper with instructions written on it is patent-eligible subject matter is believed to likewise be displaced.” (Answer 8). We agree.

As noted above, the invention covers a piece of paper with instructions printed thereon, not a process of executing the instructions with a machine. It is not until the instructions are converted into an appropriate electronic form to be read and processed by the computer and cause the

computer to perform the requisite functionality that the instructions become functional descriptive material. As such, the computer readable medium before us which includes “paper” is distinguishable from a computer program product that is stored in a computer memory that can cause a computer to perform certain functions.

Appellants also argue that “claims 21-30 and 38-40 require that information is processed, not by the mind, but by a machine.” (Br. 5: Reply Br. 2). The Examiner responds that “[s]ince claims 21-30 and 38-40 are directed to the medium itself and not execution of the instructions, these claims do not require information to be processed at all, much less be processed by a machine.” (Answer 9). We agree.

It is our view that the claims are merely directed to a medium that includes paper, and not the execution of the instructions on the paper. The “computer elements” that appear in the claim are not elements *per se* of claim 21, but instead elements associated with the functionality which would occur if the instructions of claim 21 were executed. Claim 21 merely requires a medium, which includes paper, to have instructions for causing a computer to execute the particular method. However, as noted above, the actual execution of the instructions is not required by the medium. For example, claim 21 fails to include any explicit steps for electronically capturing the printed subject matter, compiling and interpreting the subject matter and storing the subject matter in a computer memory.

Claims 22-30 and 38-40 each recite a “medium” for performing a function. The “medium” of these claims share the same interpretations as discussed *supra* for “medium” in claim 21. For the reasons *supra*, we

conclude that claims 22-30 and 38-40 are also directed to non-statutory subject matter.

Transmission Type Situation

We find that Appellants' description of a "computer-readable medium" can be any means that can... propagate, or transport the program" and as a "propagation medium" (FF 1-2) implicates carrier waves and signals despite the absence of such terms in the description.

That said, the issue, quite simply, is whether a claimed computer readable medium that is broad enough to include transmission-type media – a media that includes carrier waves and signals – is statutory subject matter. We have argued that a carrier wave or signal is not statutory subject matter because it does not fall within any of the four categories of statutory subject matter. *See In re Petrus A.C.M. Nuijten*, (Fed. Cir., 2006-1371, Sep. 20, 2007). In this instance, claim 21 includes both statutory and non-statutory subject matter that, according to recent proposed USPTO interim guidelines, must be amended to recite solely statutory subject matter.⁶

Even if as carrier wave or signal could be considered to be an article of manufacture, however, we find that such a carrier wave or signal does not operate as the claimed computer readable medium. Claim 21 recites a computer readable medium having instructions for causing a computer to

⁶ *See also* "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility," 1300 Off. Gaz. Pat. Office 142, Annex IV(C)(2)(Nov. 22, 2005) ("[A] claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application.").

execute a method. As a result, it is our view that the computer cannot perform the claimed functions while the instructions are within a carrier wave or a signal. In other words, the information, while on the carrier wave or signal, is unavailable to the computer for performing the functions recited in claim 21.

For the above reasons, we find that claim 21 recites non-statutory subject matter. The “medium” of claims 22-30 and 38-40 share the same interpretations as discussed *supra* for “medium” in claim 21. For the reasons *supra*, we conclude that claims 22-30 and 38-40 are also directed to non-statutory subject matter.

CONCLUSIONS

We conclude that Appellants have not shown that the Examiner erred in rejecting claims 21-30 and 38-40.

Thus, claims 21-30 and 38-40 are not patentable.

DECISION

In view of the foregoing discussion, we affirm the Examiner’s rejection of claims 21-30 and 38-40.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

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